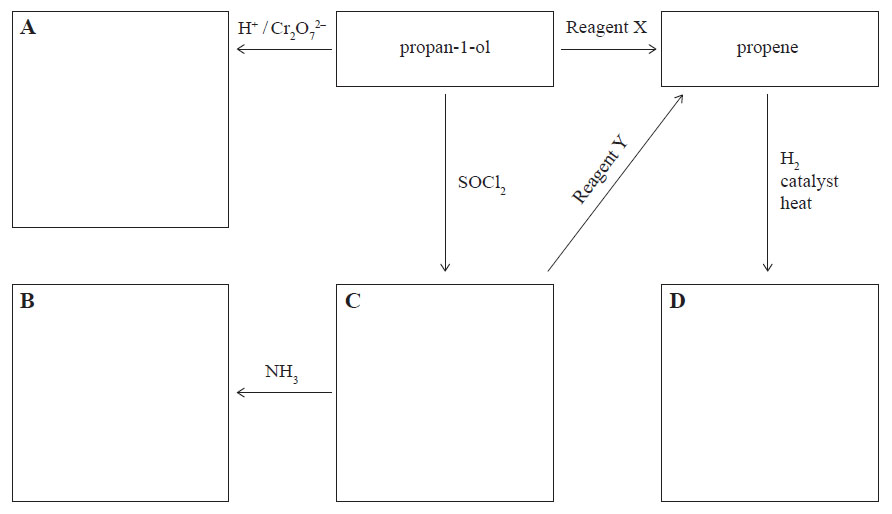
**Level 2 Organic reaction flow charts**

1.

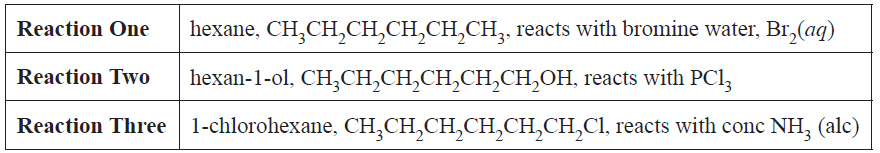
****

(i) Complete the scheme above by drawing the structural formulae of the organic compounds A to D.

(ii) Circle the functional group of each of the organic compounds A, B, and C that you have drawn.

(iii) Identify reagents X and Y.

**2.** The reactions shown below are all classified as being the same type of reaction.

****

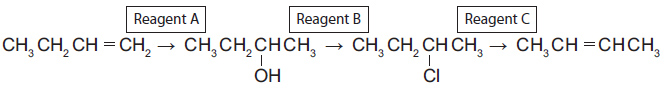
Compare and contrast these reactions. In your answer you should:

• state whether any conditions are required

• describe the type of reaction occurring and explain why all three reactions are classified as this type

• explain why two layers form in **Reaction One**.

**3.** The flow diagram below shows a reaction scheme for the conversion of but-1-ene into but-2-ene.



Use the reaction scheme above to write down:

• the formula of each reagent, including any necessary conditions

• the type of reaction occurring.

**4.** Butan-1-ol can react separately with each of PCl5, Cr2O72– / H+, and concentrated H2SO4.

Elaborate on the reactions of butan-1-ol with each of the three reagents. For each reaction, your answer

should include:

• the type of reaction occurring and the reason why it is classified as that type

• the name of the functional group formed in each product

• the structural formula of the **organic** product.

**5.** But-1-ene is used in the reaction sequence shown below.

****

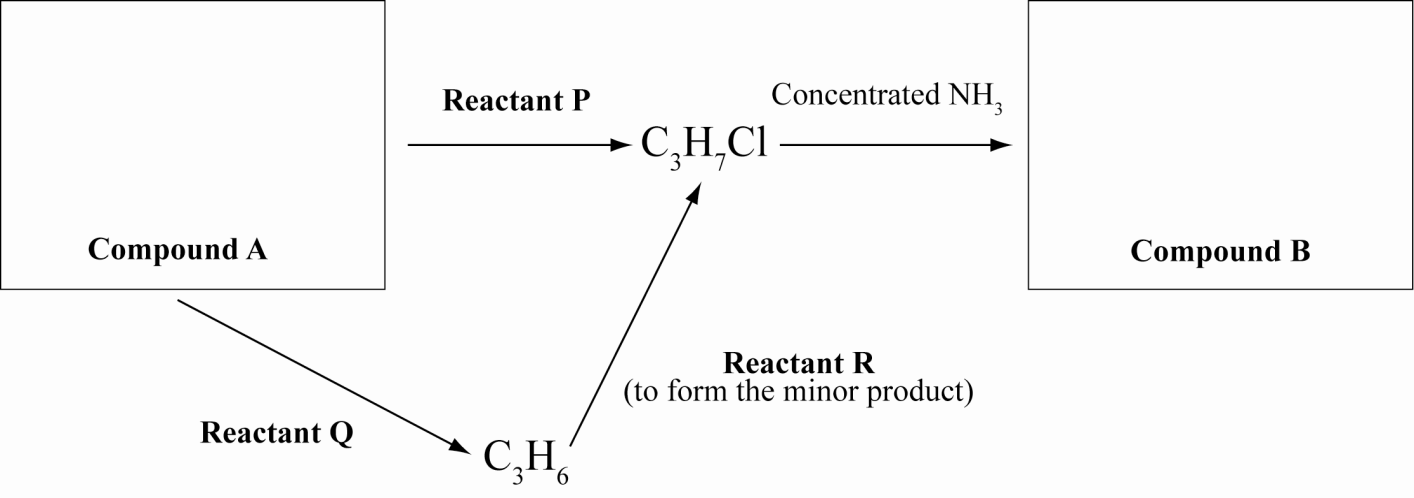
**a) i)** Draw two repeating units of the polymer, **B**, formed in **Reaction 1**.

**ii)** Give the name or formula of a suitable reagent in **Reaction 4**; include any specific conditions required.

**iii)** Give the name or formula of a suitable reagent in **Reaction 3**; include any specific conditions required.

**b) i)** Draw the structural formulae of the organic molecules **C** and **D**, formed in **Reaction 2**

**6. a)** The flow diagram below shows some reactions involving organic substances.



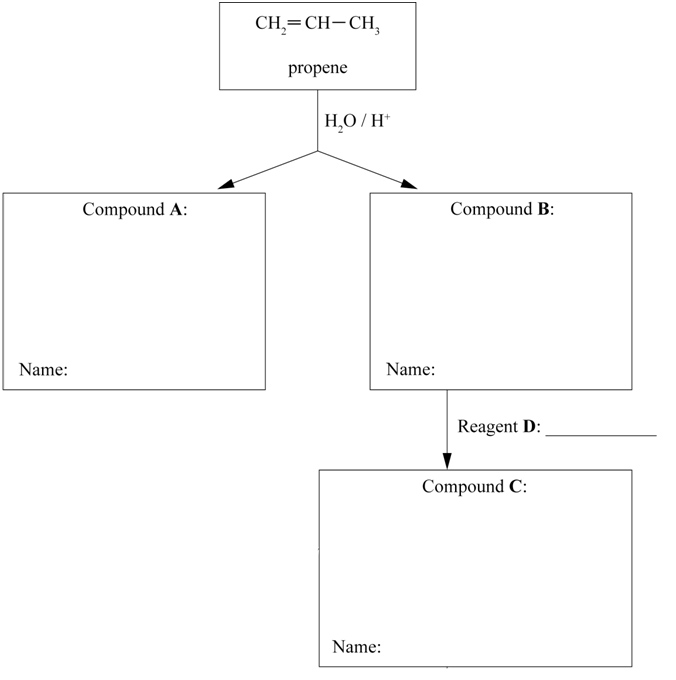
Compound A has a molecular formula C3H8O. It reacts readily with acidified potassium dichromate solution.

**i)** Write the structural formula of Compound A in the box in the flow diagram above.

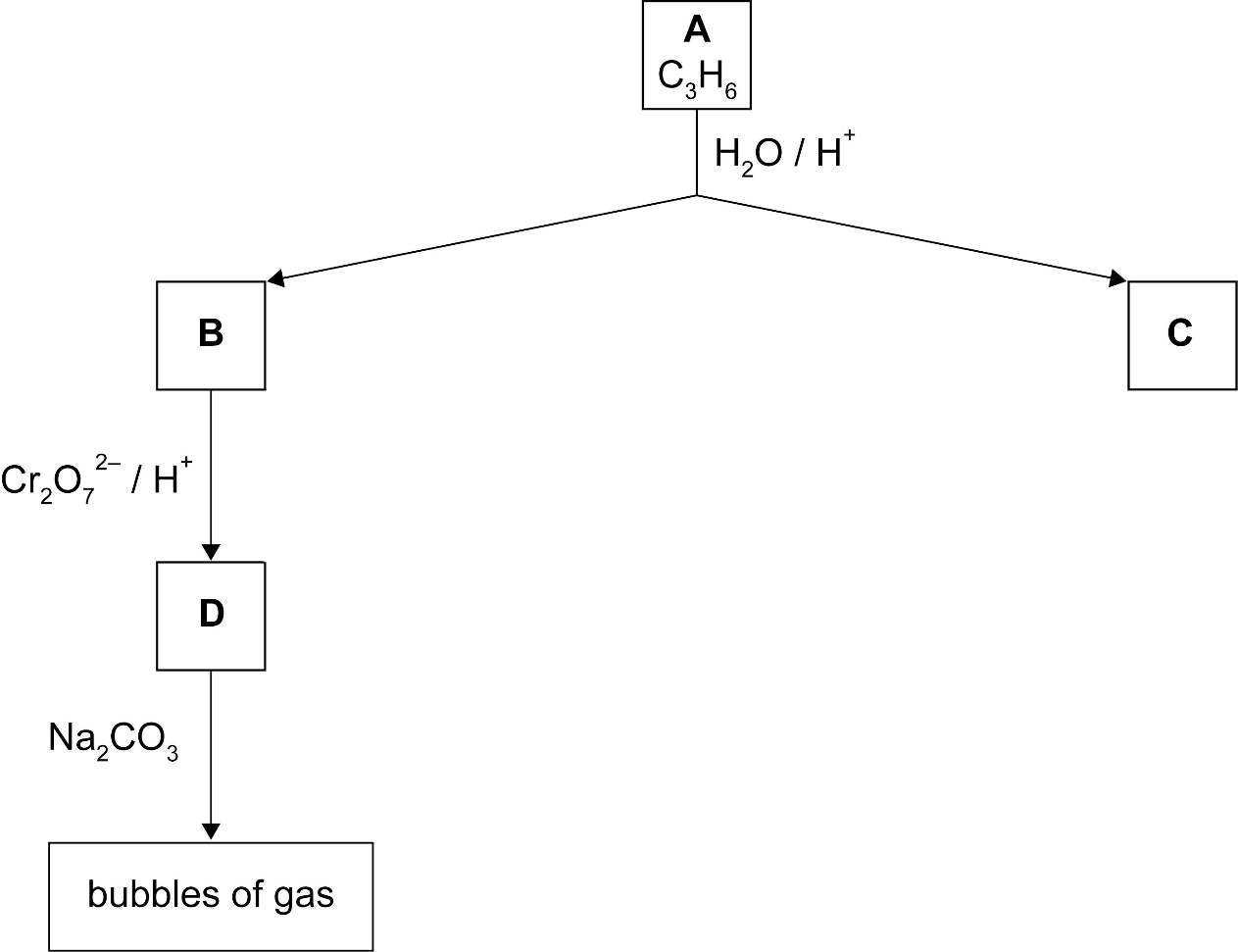
**ii)** Write the structural formulae for Compound B in the box in the flow diagram above.

**iii)** Write the name OR formula of Reactant P, Reactant Q, and Reactant R. State any conditions for the reaction to occur

**7.** The flow diagram below shows a series of organic reactions. Complete the diagram by drawing **structural formulae** and writing **IUPAC (systematic) names** for the compounds **A**, **B** and **C** (which turns litmus red) and identifying reagent D.



**8.** An unsaturated compound **A**, C3H6, reacts with water under acidic conditions to form two new products, **B** and **C**. Product **B** reacts with acidified potassium dichromate solution to form **D**. Product **D** reacts with a solution of sodium carbonate produing bubbles of gas.



Write down the structural formula and name for each compound **A**, **B**, **C** and **D**

© 2016 <http://www.chemicalminds.wikispaces.com>

NCEA questions and answers reproduced with permission from NZQA